

CLAIMS

2 What is claimed is.

3 1. A process for coloring thermoplastic olefin based resins comprising the steps of:

4 adding a suitable amount of liquid coloring compound to the thermoplastic olefin based resin
5 at a rate sufficient to color the thermoplastic olefin based resin;

6 passing the mixture of liquid coloring compound and thermoplastic olefin based resin into
7 a mill; and

8 pulverizing the mixture of liquid coloring compound and thermoplastic olefin based resin
9 inside of the mill for a time sufficient to fuse said liquid coloring compound onto each particle of
10 the thermoplastic olefin based resin.

11 2. The process of claim 1 further comprising maintaining the temperature of the mixture inside
12 of the mill at between 85°C and 125°C during the milling process.

13 3. The process of claim 1 where the amount of coloring compound added to the thermoplastic
14 olefin based resin is less than 1.0 % by weight.

15 4. The process of claim 1 where the amount of coloring compound added to the thermoplastic
16 olefin based resin is less than 0.2 % by weight.

17 5. The process of claim 1 where the flow of liquid coloring compound onto the thermoplastic
18 olefin based resin is at a constant rate.

- 1 6. The process of claim 1 further comprising pulverizing the thermoplastic olefin based resin
- 2 to an average size of less than 600 microns.
- 3 7. The process of claim 1 further comprising the step of varying the mass flow rate of liquid
- 4 coloring compound flow rate based on changes in the mass flow rate of thermoplastic olefin
- 5 based resin entering said mill.
- 6 8. The process of claim 1, wherein said mill includes a rotating rotor coplanerally disposed
- 7 within a stator having an annulus formed to radially circumscribe the outer circumference
- 8 of said rotating rotor.
- 9 9. The process of claim 8 wherein said rotating rotor has a plurality of teeth on its outer radius.
- 10 10. The process of claim 8 wherein said stator has formed on its inner radius a plurality of teeth
- 11 in cooperation with said plurality of teeth on said rotating rotor to form a gap between said
- 12 teeth such that when a mixture of polymer pellets and liquid coloring compound passes
- 13 through said gap the polymer pellets will be pulverized by the opposing action of said teeth
- 14 into polymer powder particles and said liquid coloring compound is embedded onto the
- 15 surface of the polymer powder particles thereby in a single step pulverizing said polymer
- 16 pellets and producing polymer powder particles colored by said liquid coloring compound.